Issue II

The Duck Times

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Trump Wins.

By ROXI HONG '29

On November 5th, the US presidential election came to a shocking conclusion with Donald J. Trump being re-elected as President. In addition to winning 312 Electoral College votes and sweeping every swing state, he won the national popular vote by 2%—making him the first Republican to achieve this since 2004. The president-elect's plans for this term include, but are not exclusive to, limiting immigration, having tax policies that favor corporations and wealthy people, increasing tariffs, and reducing emphasis on diversity (ex. cutting back legal protections for LGBTQ+ people). Furthermore, Trump shows disregard for climate change, as he'd proposed a policy that relies heavily on the use of fossil fuels. Additionally, he also says that he plans to repeal the Affordable Care Act but has not yet suggested a replacement, stating that he has 'concepts of a plan'. Overall, Trump's agenda for his term in office seems to lean towards conservative policies and economic growth.

500-pound bomb from World War 2 unearthed at TSMC site

By ALEXANDER CHEN '29

An undetonated American bomb dating back to the Second World War was discovered on Monday, November 11th, at a Taiwan Semiconductor Manufacturing Corporation (TSMC) construction site in Kaohsiung.

The finding was made by construction workers at approximately 9:35 a.m, and the military was alerted to the "severely corroded bomb" an hour afterwards. A specialized unit was dispatched to secure the explosive, and normal operations resumed after a brief evacuation, during which the bomb was retrieved.

The bomb was confirmed to be a World War II-era explosive originating from the US military with a damaged fuse and rusted casing. However, due to its "unclear serial number", the exact batch number could not be identified.

After experts determined that the bomb posed no immediate safety risk, it was defused and transferred to a secure storage facility, where it will be destroyed by the authorities.

The discovery of this bomb is not a unique one, however. On August 26, a 1000-pound unexploded AN-M65 was also found in the area. A city official stated that other undetonated bombs have in the past been uncovered nearby, mentioning that the site was previously a Japanese oil refinery often targeted by the US.

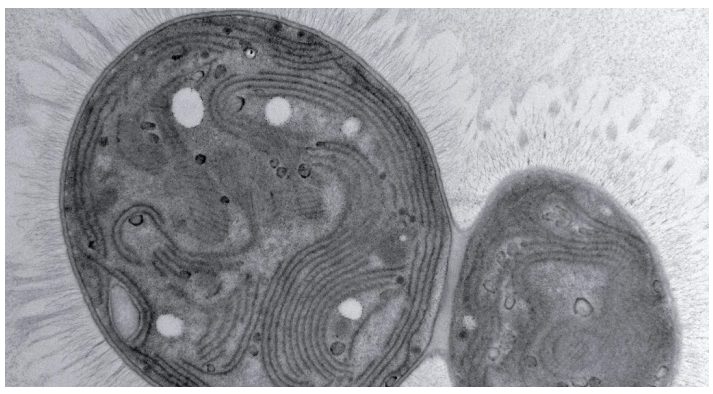
While these bombs may now be nothing more than old relics, they are exciting discoveries nonetheless, and many more may yet be revealed.

Mutant Cyanobacteria that fights climate change discovered- its name? Chonkus.

By ALEXANDER CHEN '29

Hidden away in the far corners of the world are secret galaxies teeming with microorganisms, and one of them, discovered in volcanic vents off the coast of Italy's Vulcano Island, may be a part of the solution to our planet's rising temperatures.

UTEX 3222, an ocean-dwelling microorganism discovered by an international coalition of researchers, was dubbed "Chonkus" for its unique traits that allow it to absorb CO_2 at an exceptional rate far quicker than similar species.



Chonkus is a type of cyanobacteria, or blue-green algae, which are aquatic organisms capable of absorbing light and carbon dioxide and transforming it into food. They do this through a process known as photosynthesis, very similarly to plants. However, they contain compartments known as carboxysomes that concentrate carbon dioxide, which allows them to take in more CO_2.

All cyanobacteria have these carboxysomes, which in and of itself is a benefit for combating climate change, but due to Chonkus' isolated environment, it has evolved special characteristics not found elsewhere. Specifically, its cells are larger than those of other cyanobacteria, which means that Chonkus is comparatively able to store even more carbon dioxide.

Additionally, as it has a higher density than other strains of cyanobacteria, it can sink faster in water. Researchers observed that unlike another strand of fast-growing cyanobacteria, which suspended in the water, Chonkus quickly sank and settled into a dense pellet. This tendency to sink allows for more CO_2 from the atmosphere to be stored deep in the ocean, and is helpful in the fight against climate change as oceans are one of the

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most prominent absorbers of emissions. Currently, Chonkus' ability to sink and condense into pellets may be able to save 15-30% of production costs in industrial processing, according to the Wyss Institute at Harvard.

Researchers have also observed another interesting trait in Chonkus– it appears to contain "white granules" in its cells that can also store carbon dioxide, previously unseen in other cyanobacteria.

"Many of the traits that we observed in Chonkus aren't inherently useful in their natural environment, but are very useful to humans. Aquatic organisms naturally grow at very low density, but being able to grow to a high density at higher temperatures is very helpful in the industrial environments that we use to manufacture many goods and products, and can help sequester more carbon," said Braden Tierney, one of the leading researchers.

However, there is still work that needs to be done. In order to successfully utilize it, scientists need to be able to control Chonkus' traits, and in order to do that, they need to figure out how to manipulate its DNA. Henry Lee, the CEO of Cultivarium, a nonprofit biotechnology company that is looking into genetically editing Chonkus, explained the issue. "Oftentimes we'll find in nature that a microbe can do something kind of cool, but it doesn't do it as well as we need to," he said.

Chonkus may just be one of the first important discoveries of many– of all the microbes currently in existence, less than 0.01% have been studied. Perhaps, in even more extreme environments around the world, scientists may make greater findings and get one step closer to the perfect CO_2-removing microbe.

At the end of the day, climate change is humanity's problem, and it is ultimately up to humans to solve it. But, scientific discoveries such as Chonkus may help lead the way to a brighter, carbon-free future.

Taiwan and Japan's first ever joint satellite launched by TASA

By ALEXANDER CHEN '29

On Tuesday, November 5th, the first ever satellite developed by a joint effort between Taiwan and Japan was launched into space, bound for the International Space Station (ISS).

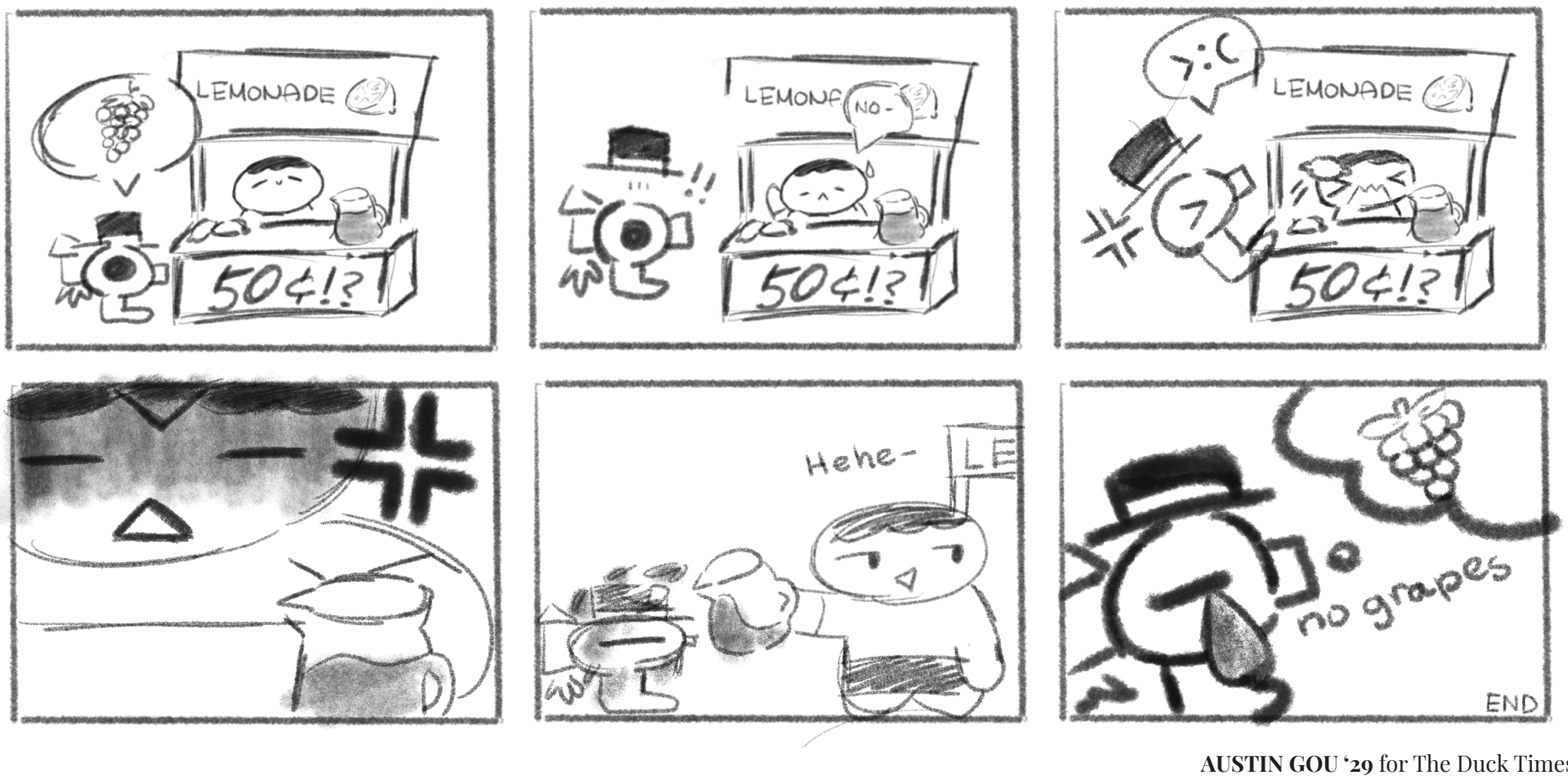
While the satellite was developed in Asia, it was launched from Cape Canaveral, Florida, aboard a SpaceX Falcon 9 rocket on a resupply mission. According to the Taiwan Space Agency (TASA), the cube-shaped monitoring satellite is planned to be ejected from the ISS and sent into a low earth orbit of 410 km for a 6-month long mission.

According to TASA, the main objective of the satellite is to testhigh-resolution data collection and image compression technologies that were developed in collaboration with the Taiwan Semiconductor Research Institute (TSRI).

The satellite's name, "Onglaisat," also holds significance. The project's leader, Chan Chen-Yu, explained that "Onglai" means both "pineapple" and "prosperity" in Taiwanese. Aside from being a symbol of prosperity, Chan also wanted the name to be chosen for deeper reasons– in 2021, when China banned Taiwanese pineapple exports, Japan bought large quantities of the fruit in order to support Taiwan's economy.

This action by the Japanese government resonated with many Taiwanese citizens and inspired the name "Onglaisat". Chan concluded that the name represents the friendship between the two nations and symbolizes aspirations for future joint space efforts.

Although Onglaisat currently has not begun the testing phase of its mission, the results will certainly advance our understanding of space technology and serve as a valuable opportunity for scientific exchange.



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